

(19) World Intellectual Property Organization
International Bureau



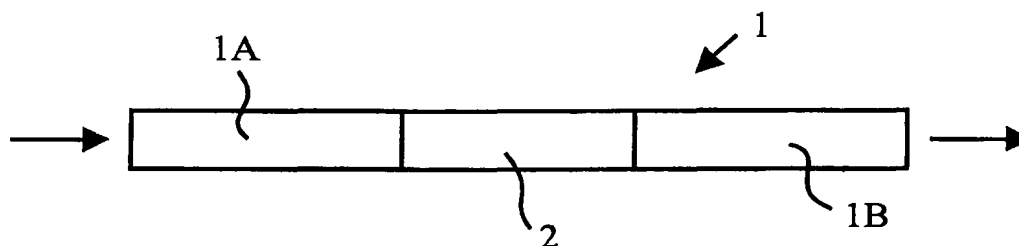
(43) International Publication Date
24 July 2003 (24.07.2003)

PCT

(10) International Publication Number
WO 03/060599 A2

- (51) International Patent Classification⁷: **G02F 1/00**
- (21) International Application Number: PCT/GB02/05930
- (22) International Filing Date:
27 December 2002 (27.12.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0131001.0 27 December 2001 (27.12.2001) GB
0131003.6 27 December 2001 (27.12.2001) GB
0218842.3 14 August 2002 (14.08.2002) GB
- (71) Applicant (for all designated States except US):
BOOKHAM TECHNOLOGY PLC [GB/GB]; 90
Milton Park, Abingdon, Oxon OX14 4RY (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **KNIGHTS, Andrew, Peter** [GB/GB]; 19 Teescroft, Didcot, Oxon, OX11 7RP (GB). **VONSOVICI, Adrian, Petru** [GB/GB]; 59 Runnymede, Wimbledon, London, SW19 2PG (GB). **BRADY, Dominic, Joseph** [GB/GB]; 41 Benson Road, Headington, Oxford, OX3 7EJ (GB). **HOUSE, Andrew, Alan** [GB/GB]; 8 Blackstock Close, Headington, Oxford OX3 7JR (GB). **HOPPER, George, Frederick** [GB/GB]; 50 Loosen Drive Maidenhead, Berkshire SL6 3UT (GB).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: AN IN-LINE LIGHT SENSOR



(57) Abstract: An integrated optical waveguide (1) having an in-line light sensor (2) integrally formed therewith for tapping off a small proportion of the signal transmitted along the waveguide (1). A first part (1A) of the waveguide leads to a photodiode portion (2) and a second part (1B) of the waveguide leads away from the photodiode portion (2), the photodiode portion (2) comprising one or more regions (14) of light absorbing material within the waveguide (1) arranged to absorb a minor proportion of light transmitted along the waveguide (1) and thereby to generate free charge carriers within the waveguide (1). Deep band gap levels (21) are introduced into photodiode portion by ion implantation to enable it to absorb selected wavelengths. The free charge carriers are detected by a p-i-n diode formed across the waveguide (1). Wavelength selective reflectors (11, 12) may be provided either side of the photodiode portion (2) so light passes repeatedly through the photodiode portion (2).